

Development Of Curriculum Of Anatomy For BDS Students In UZ, Harare: A Survey-Based Study

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Abstract

Objective: To evaluate and optimize the anatomy curriculum for BDS students in UZ.

Study design: It is a survey-based study.

Place and duration of study: A six-month study was carried out in the Anatomy Department, College of Health Sciences, University of Zimbabwe, Harare (March to August 2020).

Material and Methods: A survey-based study was conducted in UZ, College of Health Sciences. To collect the data, two separate structured questionnaires were prepared. The structured questionnaires were then administered to medical faculty, BDS students of 3rd, 4th & 5th yr and practising dentists & internees, respectively. The sample size of the study was 70.

Results: The data collected via the two structured questionnaires was analyzed. Analysis showed that all the stakeholders thought that the core dentistry subjects should be introduced earlier to the BDS students. Moreover, it was recommended that CBL/PBL be added to the curriculum to make the overall BDS curriculum more effective.

Conclusion: The majority of the faculty members, BDS students, dentists and internees thought that the content of Anatomy for BDS students should be concise, specific and pertinent. The respondents supported the incorporation of CBL/PBL in the existing curriculum to make it more worthwhile.

Keywords: Curriculum, Dentist, Questionnaire.

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1. Introduction

The term curriculum is formally used for a course of conceptual studies which is undertaken by students in an educational institution. In other words, the curriculum is a broad teaching program to provide resources including faculty to achieve the increasing demands of a vibrant community². So, we can say that curriculum refers to the bond among nations, the community and educationists concerning the instructional skills that learners must encounter during a particular period of their lives.

The significance of good dental hygiene has always been considered a matter of paramount importance in the whole world. Accordingly, Bachelor of Dental Surgery (BDS) students are required to be groomed and educated to fulfil society requirements⁵. It is, therefore, essential to regularly review the BDS curricula to match the latest advancements⁶. Over the past few years, BDS training in developed countries has been carried out using competency-based curricula rather than the traditional time-based apprentice approaches⁷.

Competency-based medical/dental education curricula are being approved as the preferred

instruments of medical instruction throughout the world⁸. Such curricula are considered to be better at producing practising graduates for all groups and communities. The competencies desired to be achieved is taken as a first step in the development of the curriculum¹⁰. Moreover, to confirm that every instrument of instruction is distinctive to its institution, locality, vision and mission¹¹; this curricular philosophy formulates a union of teaching and evaluation techniques by different sub-specialities and disciplines contributing to the courses¹².

Dental graduates require both theoretical and practical knowledge of dentistry to empower them to act cautiously and beneficially as healthcare professionals¹³. It is the primary liability of the institutions to devise the best methods to train the dental students¹⁴. It is the principal requirement of the time to reorganize, modify and improve the ongoing BDS curriculum regarding the duration, assessment and evaluation system with active teaching and learning.

At present the health care problems faced by sub-Saharan Africa are especially crucial. It is, therefore, emphasized that the continent's medical/dental schools should beget graduates who have the potential

to meet the specific demands of society¹⁷. Competency-based medical education is a result-based training paradigm that focuses on imparting the graduate with knowledge, skills, and attitudes which are pertinent to the host habitants¹⁸. This educational framework is an appropriate evaluator for the rapidly changing health demands of individual societies¹⁹. Hence, it is progressively being approved by medical schools globally to confer graduates with the skills essential for modern medical and dental practice.

2. Materials & Methods

A survey-based study was conducted after its approval by the joint research ethics committee for the University of Zimbabwe, College of Health Sciences and Parirenyatwa Group of Hospitals. The participants for the current research were lecturers, students of BDS, dentists and interneers. The participants were strongly encouraged to fill out the questionnaire but their participation remained voluntary. They were informed about the study and signed a consent form. The names and other personal information of the study participants were protected. The sample size was 70. The number of lecturers, BDS students, dentists and interneers who participated in this study was 12, 38, 7 and 13, respectively. The data was collected by two separate structured questionnaires. The first questionnaire was given to faculty and BDS students in 3rd, 4th & 5th years while the second questionnaire was filled up by dentists and interneers to evaluate the Anatomy curriculum taught to BDS students in UZ. Analysis was done using SPSS V20. A T-test was applied to check the significance. A p-value <0.05 was taken as significant.

3. Results

The response of the participants regarding questionnaire 1 and 2 in term of frequency and percentage is shown in table 1 and 2.

Table 1 Distribution of the respondents according to the category for Questionnaire 1. (n=50)

Category	Frequency	(%)
Faculty	12	24
Students	38	76
Total	50	100

Table 2 Distribution of the respondents according to the category for Questionnaire 2. (n=20)

Category	Frequency	(%)
Dentists	7	35
Interneers	13	65
Total	20	100

5. Discussion

According to the Medical and Dental Professions Council of Zimbabwe (MDPCZ), the regulatory body for dental education, the duration of undergraduate training for (BDS) in Zimbabwe is six years; five-year studies followed by one year of mandatory rotatory internship.

The subjects which are being taught in the basic medical sciences during the first two years are human anatomy human physiology, biochemistry, dental anatomy and behavioural science.

The BDS students take the subject of human anatomy along with the MBBS students. Hence they study the subject of anatomy in the same detail and extent as done by MBBS students.

The present survey was conducted to review, revise and improve the current curriculum of Anatomy for BDS students at the University of Zimbabwe.

The data was collected through questionnaires from medical faculty, BDS students of 3rd, 4th, 5th years, dentists and interneers. There were 70 participants, which included 12 faculty members, 38 students, 7 dentists and 13 interneers.

The study recorded some important findings which were necessary for the improvement and up-gradation of the existing curriculum of dentistry at the University of Zimbabwe.

Moreover, the study emphasized making the curriculum of anatomy more comprehensive and pertinent to achieve the mandatory goals of dentistry in UZ.

The first questionnaire was distributed to faculty and BDS students.

Questionnaire 1 Response

Q	Frequency (Yes)	(%) (Yes)	Frequency (No)	(%) (No)
1(a)	25	50	25	50
1(b)	35	70	15	30
2(a)	28	56	22	44
2(b)	33	66	17	34
2(c)	40	80	10	20
2(d)	46	92	4	8
2(e)	46	92	4	8
2(f)	43	86	7	14
3(a)	31	62	19	38
3(b)	28	56	22	44
3(c)	41	82	9	18
3(d)	42	84	8	16
3(e)	42	84	8	16
3(f)	44	88	6	12
4	26	52	24	48
5	40	89	10	20

P value = 1.09613E-05 (P ≤ 0.05 significant)

A mixed response was obtained from both the faculty and students regarding teaching non-essential content (considered) to the BDS students. The majority of the faculty (83%) supported 'early teaching of core dentistry subjects' and 'incorporation of CBL/PBL'. Similarly, 79% of the students also supported the addition of CBL/PBL in the curriculum of BDS while only 42% of the students agreed with the idea of early teaching of core dentistry subjects.

The second questionnaire was disseminated to dentists and interneers. Both the groups provided mixed responses regarding teaching, and content of Anatomy considered non-essential, to BDS students.

Questionnaire 2 Response

Q	Frequency (Yes)	(%) (Yes)	Frequency (No)	(%) (No)
1(a)	12	60	8	40
2(a)	15	75	5	25
3	18	90	2	10
4(a)	9	45	11	65
4(b)	13	65	7	35
5(a)	12	60	8	40
5(b)	12	60	8	40
5(c)	12	60	8	40
5d)	15	75	5	25
5(e)	15	75	5	25
5(f)	16	80	4	20
6(a)	11	55	9	45
6(b)	10	50	10	50
6(c)	11	55	9	45
6(d)	13	65	7	35
6(e)	13	65	7	35
6(f)	13	70	7	30
7(a)	14	70	6	30

P value = 2.47323E-05 (P ≤ 0.05 significant)

57% of dentists and 69% of interneers were in favour of early teaching of the core subjects of dentistry, while 57% of dentists and 61% of interneers showed satisfaction with the existing curriculum of anatomy. Similarly, 57% of dentists and 85% of interneers also found that the current curriculum meets 'hands-on training requirements'. Moreover, the majority of dentists (86%) and interneers (92%) fully supported that CBL/ PBL be incorporated into the BDS curriculum. The results of this study offer valuable information on the current perspectives of all stakeholders about the curriculum which was being taught to BDS students in UZ.

Questionnaire-1 (for faculty and BDS students of 3rd, 4th & 5th yr)**Designation: Faculty / Student 3rd / 4th / 5th yr**

Q. No.1	Should the following regions in gross anatomy be taught in detail in BDS at UZ?	(a) Lower limb (Yes / No) (b) Abdomen & pelvis (Yes / No)
Q. No.2	Should the development of the following systems be taught in embryology to BDS at UZ?	(a) Genital system (Yes / No) (b) Renal system (Yes / No) (c) Integumentary system (Yes / No) (d) Cardiovascular system (Yes / No) (e) Musculoskeletal system (Yes / No) (f) Respiratory system (Yes / No)
Q. No. 3	Should the following systems be taught in histology to BDS at UZ?	(a) Renal system (Yes / No) (b) Genital system (Yes / No) (c) Integumentary system (Yes / No) (d) Respiratory system (Yes / No) (e) Endocrine system (Yes / No) (f) GIT system (Yes / No)
Q. No. 4	Should the dentistry subjects (e.g. Dental materials, etc.) be introduced to BDS students in the first two years at UZ?	(Yes / No) If Yes, then suggested subjects_____
Q. No. 5	Should case-based learning (CBL) & problem-based learning (PBL) be incorporated into the present BDS curriculum of Anatomy at UZ to enhance learning value?	(Yes / No)

Questionnaire- 2 (for graduated BDS students in internship & practising dentists)**Designation: Dentist / Intern**

Q. No. 1	Are you satisfied with the current curriculum of Anatomy taught at UZ?	(Yes / No) If No, then indicate reasons with suggested improvements_____
Q. No. 2	Does the current curriculum of Anatomy taught at UZ meet your hands-on training requirements?	(Yes / No) If No, then indicate reasons with suggested improvements_____
Q. No. 3	Will the incorporation of case-based learning (CBL) & problem-based learning (PBL) in the current BDS curriculum of Anatomy at UZ help in the enhancement of student's knowledge of Anatomy?	(Yes / No)
Q. No. 4	Is there any significance of teaching, in detail, the following regions in gross anatomy in BDS at UZ towards clinical practice?	(a) Lower limb (Yes / No) (b) Abdomen & pelvis (Yes / No)
Q. No. 5	Is there any significance in teaching the development of the following systems in embryology to BDS at UZ towards clinical practice?	(a) Genital system (Yes / No) (b) Renal system (Yes / No) (c) Integumentary system (Yes / No) (d) Cardiovascular system (Yes / No) (e) Musculoskeletal system (Yes / No) (f) Respiratory system (Yes / No)
Q. No. 6	Is there any significance in teaching the following systems in histology to BDS at UZ towards clinical practice?	(a) Renal system (Yes / No) (b) Genital system (Yes / No) (c) Integumentary system (Yes / No) (d) Respiratory system (Yes / No) (e) Endocrine system (Yes / No) (f) GIT system (Yes / No)
Q. No. 7	Should the dentistry subjects (e.g. Dental materials, etc.) be introduced to BDS students in the first two years at UZ?	(Yes / No) If Yes, then suggested subjects_

5. Conclusion

Based on the input of all the stakeholders, the curriculum of anatomy was reviewed and revised to make it more effective. The core density subjects were moved earlier in the program and CBL/PBL made an integral part of the existing curriculum. Despite known (and expected) challenges in the execution process, the project had been worthwhile and was expected to improve the knowledge and performance at the concluding assessments. An official evaluation and implementation of this curriculum was being planned. A similar exercise may be carried out after 3-5 years to gauge the effectiveness of the updated curriculum to fine-tune it further as required. The curriculum as well as imparting and gaining approaches should be dynamic to beget BDS graduates equipped with knowledge, skills and attitudes.

CONFLICTS OF INTEREST- None

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Potential competing interests: None to report

Contributions:

MK - Conception of study

MK - Experimentation/Study Conduction

MK - Analysis/Interpretation/Discussion

MK - Manuscript Writing

MK - Critical Review

MK - Facilitation and Material analysis

References

- [1] Cooper T. Curriculum Renewal: Barriers to Successful Curriculum Change and Suggestions for Improvement. *Journal of Education and Training Studies*. 2017 Nov;5(11):115-28.
- [2] Ahmad T. Scenario-based approach to re-imagining the future of higher education which prepares students for the future of work. *Higher Education, Skills and Work-Based Learning*. 2019 Dec 2.
- [3] Elder GH, Johnson MK. The life course and ageing: Challenges, lessons, and new directions. In *Invitation to the life course: Toward new understandings of later life* 2018 Feb 6 (pp. 49-81). Routledge.
- [4] González-Olmo MJ, Delgado-Ramos B, Ruiz-Guillén A, Romero-Maroto M, Carrillo-Díaz M. Oral hygiene habits and possible transmission of COVID-19 among cohabitants. *BMC Oral Health*. 2020 Dec;20(1):1-7.
- [5] Mahanta SK, Humagain M, Prajapati D, Paudyal B, Upadhyay P. Oral health knowledge, attitude, and practice among medical and non-medical students at a tertiary hospital. *Nepal Dent Assoc*. 2021 Jan;21(1):29-33.
- [6] Tamgadge S, Nayak A, Tamgadge A, Pai VV, Saini S. Revised curriculum of BDS with optional subjects: A thought process. *International Journal of Community Dentistry*. 2021 Jul 1;9(2):41.
- [7] Khanna R, Mehrotra D. The roadmap for quality improvement from traditional through competency based (CBE) towards outcome based education (OBE) in dentistry. *Journal of oral biology and craniofacial research*. 2019 Apr;9(2):139.
- [8] Banerjee Y, Tuffnell C, Alkhadragy R. Mento's change model in teaching competency-based medical education. *BMC Medical Education*. 2019 Dec;19(1):1-8.
- [9] Ten Cate O, Carraccio C. Envisioning a true continuum of competency-based medical education, training, and practice. *Academic Medicine*. 2019 Sep 1;94(9):1283-8.
- [10] Tabin N, Pannetier C, Stolz D. Methodology of curriculum development. *Journal of Thoracic Disease*. 2021 Mar;13(3):2035.
- [11] Hannan A. Santripreneurship and Local Wisdom: Economic Creative of Pesantren Miftahul Ulum. *Shirkah: Journal of Economics and Business*. 2019 Dec 25;4(2).
- [12] Kato, Y., Liew, B.S., Sufianov, A.A., Rasulic, L., Arnautovic, K.I., Dong, V.H., Florian, I.S., Ollidashi, F., Makhambetov, Y., Isam, B. and Thu, M., 2020. Review of global neurosurgery education: horizon of neurosurgery in the developing countries. *Chinese neurosurgical journal*, 6(03), pp.178-190.
- [13] Kærsgaard, J.L.B., Christensen, M.K., Søndergaard, P.Y. and Naukkarinen, J., 2021. Gender differences in dentistry: A qualitative study on students' intrinsic and extrinsic motivations for entering dentistry at higher education. *European Journal of Dental Education*, 25(3), pp.495-505.
- [14] Poelman MR, Brand HS, Forouzanfar T, Daley EM, Jager DH. Prevention of HPV-related oral cancer by dentists: assessing the opinion of Dutch dental students. *Journal of cancer education*. 2018 Dec;33(6):1347-54.
- [15] El-Kishawi M, Khalaf K, Winning T. How to improve fine motor skill learning in dentistry. *International Journal of Dentistry*. 2021 Feb 8;2021.
- [16] Abd Rahim A, Abdul Manaf R, Juni MH, Ibrahim N. Health system governance for the integration of mental health services into primary health care in the sub-Saharan Africa and South Asia region: A systematic review. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*. 2021 Jul;58:004695802111028579.
- [17] Jones JA, Snyder JJ, Gesko DS, Helgeson MJ. Integrated medical-dental delivery systems: models in a changing environment and their implications for dental education. *Journal of dental education*. 2017 Sep;81(9):eS21-9.
- [18] Sharma R, Bakshi H, Kumar P. Competency-based undergraduate curriculum: A critical view. *Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine*. 2019 Apr;44(2):77.
- [19] LaVelle JM, Galport N. Using the 2018 AEA Evaluator Competencies for evaluator education and professional development. *New Directions for Evaluation*. 2020 Dec;2020(168):99-116.
- [20] Regmi K, Jones L. A systematic review of the factors—enablers and barriers—affecting e-learning in health sciences education. *BMC medical education*. 2020 Dec;20(1):1-8.